REMARKS/ARGUMENTS

Claims 1-24 are pending in this application wherein claims 1, 11 and 17 are in independent format. In this response, claims 1-10, 13 and 17-24 have been cancelled and claims 11 and 14-16 have been amended. In view of the arguments and claim amendments, the Applicants consider the grounds of rejection to be moot.

Rejection Under 35 U.S.C. 103(a)

The Examiner rejected claims 1-22 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Kenney* et al. (U.S. Patent No. 6,652,249) (the "*Kenney*" reference) in view of *Clemmons* (U.S. Patent No. 5,961,293) (the "*Clemmons*" reference). The Examiner states in paragraph 6 of page 2 of the Office Action that the *Kenney* reference teaches a pump with variable outputs by referencing Column 9, line 42 to Column 10, line 3. The Examiner notes that the motivation to combine the *Kenney* reference and the *Clemmons* reference to achieve the claimed invention can be found in the fact that the pump taught by the *Kenney* reference can be operated at either a constant speed or a variable speed. *Id.*

The Examiner also rejected claims 23-24 under 35 U.S.C. 103(a) as being allegedly unpatentable over *Clemmons* and *Kenney* and further in view of *Braun* (U.S. Patent No. 4,811,709) (the "*Braun*" reference). The Examiner contends that it would have been obvious to allow the fuel in *Clemmons* to contact the heat sink (30) and transistor already present to better cool the transistor.

Applicants note that, under M.P.E.P. § 2143, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation for success. Finally, the prior art reference (or references when combined) must teach or suggest all the claimed limitations.

Claims 11, 12 and 14-16 of the present invention teach a variable outlet fuel pressure delivered to the engine. A circuit board having a processor varies the outlet fuel pressure between higher and lower levels depending on an input from the controller. (*See*: Specification p. 3, lines 16-20). Controlling the speed of the pump motor, sensing the output pressure and comparing the desired pressure against the measured pressure achieve a desired outlet pressure. *Id.* Accordingly, the outlet pressure of the fuel pump can be controlled for more than two outlet pressure values. *Id.*

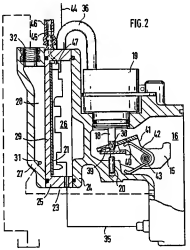
Claims 11 and 14-16 of the present invention also teach that the pump assembly has a slot which is in communication with and in contact with the fuel. (*See*: Specification, p. 8, lines 19-22). A transistor electrically connected to the printed circuit board has a heat sink wherein the transistor partially inserts within the slot so that the heat sink is directly exposed to the fuel (via the slot) such that the contact between the heat sink and the pumped fuel draw heat energy away from the transistor. *Id.*

The *Kenney* reference teaches a brushless DC wet motor fuel pump. This fuel pump balances the pressure on either side of the rotor and vanes. (*See*: Column 5, lines 65-67). In particular, the *Kenney* reference teaches a closed loop speed control system by developing an error signal based on a comparison of the measured motor speed and a reference voltage indicating the desired speed. (*See*: Column 9, lines 50-53). Under the teachings of the *Kenney* reference, by changing the width of the pulses, the average value is changed and a range of motor speeds can be obtained. (*See*: Column 9, lines 61-63). The *Kenney* reference, and in particular the teachings of the cited portion beginning at Column 9, lines 42-Column 10, line 3, does not teach a pressure sensor sensing the variable pressure of fuel discharged from the pump, wherein the pressure sensor provides an input to the processor for the processor to determine if the higher outlet fuel pressure is a desired fuel pressure. Additionally, the *Kenney* reference does not teach the processor continuing to variably control the higher outlet fuel pressure to obtain the desired fuel pressure

as a function of the speed of the motor. The *Kenney* reference is silent with respect to variably controlling outlet pressure at all.

The *Clemmons* reference teaches supplying fuel at a constant pressure. This constant pressure limits the fuel performance of the fuel pump assembly and the efficiency of the fuel delivery system. (*See*: Column 1, lines 19-20; Column 10, lines 11-13 and Column 11, lines 22-24).

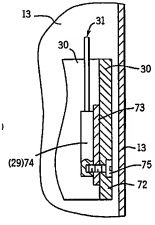
Furthermore, the *Braun* reference teaches that the control device 21 is enclosed within a circuit space 26 of the casing 23 (*See*: Fig. 2 below). The casing 23 consists of the first pan shaped section 25 which directed with its open side toward the flange portion 24 encloses the circuit space 26 that accommodates the control device 21 (*See*: Column 3, lines 18-22). Cover section 27 attaches to the outer bottom of the pan shaped section 25 to form a cooling chamber 28. The pan shaped section 25 forms a heat transfer wall 29 through which heat generated in control device 21 can be dissipated toward fuel flowing within the cooling chamber 28.



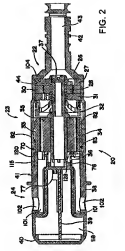
The *Clemmons* reference teaches a frame plate 23 wherein a power transistor 29 (*See*: Figs. 4, 8 and 9) mounts to an inner cooling tower 30 located in abutting relation to the outer can 13. The cooling tower 30 is interposed

between the frame 23 and the circuit board 24 (*See*: Fig. 2). The collar 30 has a flat wall 72 located in an open area adjacent to the outlet pipe 5. An electrical insulating material 73 coats the inside of flat wall 72, wherein the transistor 29 secures to the insulated wall 72. Fuel flows through fuel pipe 5 positioned within the cooling tower 30 and adjacent the insulated wall 72 to cool the transistor 29.

FIG. 8



The *Kenney* reference teaches fluid flow through two longitudinal ducts 101 (*See*: Fig. 2 below) in the electronic housing to outlet ports 102. Fuel passing through the ducts 101 cools the electronic components 39. Fuel discharges through the passages 101 in the electronics housing, wherein bulkhead 77 isolates the electrical components 39 from the passages 101. The compartment 118 has an opening at its end opposite the hub through which motor controller PC board 39 can be inserted into the compartment. This opening is closed by the end cap 40 which is secured to the housing 38 (*See*: Figs. 2 and 4).



As noted, all of the cited references teach that the heat generating circuitry is isolated from the fuel by a cooling chamber or a heat transfer wall or passages. As such, the actual circuitries of the references are not directly exposed to the fuel as the fuel is discharged by the pump. In contrast, claim 11 of the present invention recites that the transistor has a heat sink wherein the transistor partially inserts within the slot of the pump assembly so that the heat sink is directly exposed to the fuel via the slot such that contact from the heat sink and the fuel draw heat energy away from the transistor.

The inventors respectfully submit that there is not a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to achieve the claimed invention. Additionally, the references, alone or in combination, do not teach or suggest all the claimed limitations, and as such a prima facie case of obviousness is not established.

Dependent claims, by their nature, include all of the limitations of the parent independent claims and any intervening claims from which they depend. Claims 12 and 14-16 depend directly or indirectly from independent claim 11, and accordingly, are believed allowable, for at least the same previous reasons as independent claim11.

For at least the foregoing reasons, claims 11, 12 and 14-16 are believed to be in condition for allowance. Issuance of a Notice of Allowance with respect to the claims is thus respectfully requested. If for any reason the Examiner is unable to allow the application on the next Office Action and feels that an interview would be helpful to resolve any remaining issues, the Examiner is respectfully requested to contact the undersigned attorney for the purpose of arranging such an interview.

Respectfully submitted,

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